cristie software

CBMR

Cristie Bare Machine Recovery

Quick Start Guide

For Windows

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Version 7.1

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1 Document conventions

The following typographical conventions are used throughout this guide:

`/etc/passwd`	represents command-line commands, options, parameters, directory names and filenames
Next >	used to signify clickable buttons on a GUI dialogue
Note:	describes something of importance related to the current topic

2 Introduction

CBMR provides complete data protection, as well as the ability to recover critical servers from scratch within minutes. CBMR can be used as a standalone backup product and provides an ideal solution for server migration.

CBMR backs up the operating system and hard disk configuration of critical servers, enabling rapid recovery of data to an identical state following damage to or failure of the physical hardware, or a corruption of the operating system.

Please refer to the supplied **Readme** document for a list of supported Windows OS's.

CBMR also provides the ability to clone to a new machine from an existing backup. The cloning option allows the hostname and/or the IP address to be changed during the recovery.

CBMR is available as a single edition suitable for all platform types. You must have one of the supported Windows™ Operating Systems correctly installed prior to proceeding with the installation of CBMR.

A low cost licensed version of CBMR is also available. This edition offers exactly the same functionality as the full Server version, but supports Windows desktop OS's only.

To minimise the impact of a system failure, you need to have a restore strategy in place. CBMR allows you to recover Windows Workstations and Servers without first having to re-install the operating system or backup software. This reduces the recovery time significantly. All you need is disaster recovery media from which to boot your computer and a disaster recovery backup of the original Windows system.

Finally, a full backup of the system can be restored using the backup features of CBMR or any other preferred third party Backup/Restore software.

Backups can be performed to a variety of different Backup Locations and media, including IBM's Tivoli Storage Manager, tape, disk, network-attached storage etc.

IMPORTANT: Refer to the installed Readme file for any limitations and last minute updates.

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3 Using CBMR for Disaster Recovery

This section describes the essential elements of CBMR when used for Disaster Recovery.

If you wish to use CBMR in standard backup/recovery mode please refer to section CBMR in More Detail.

CBMR can protect a system against disaster all the time, if set up and configured correctly. The following sections explain this procedure.

3.1 Preparation

To use CBMR in a production environment for DR purposes, you must follow the procedure in the order listed below:

1. **Installation** (refer to the **CBMR Installation and Licensing Guide**)
   - *Install the CBMR Backup and Restore software*
   - *License the Software (using a Trial or Full license)*

2. **Prepare WinPE2 or WinPE4 DR ISO/CD-ROM** (refer to the **Cristie Recovery ISO Producer User Guide**)
   - *Install and run the Cristie Recovery ISO Producer (CRISP) tool on a suitable system to create the CBMR WinPE2 or WinPE4 based DR environment in ISO form. The ISO may then be burnt to CD or DVD physical media if required. This only needs to be done once.*

3. **Machine Configuration**
   - *Save the Machine Configuration parameters. Update when significant hardware changes are made. Configuration parameters are always saved into the backup itself (this cannot be changed).*

4. **Backup system (OS) and User data**
   - *Perform regular Disaster Recovery backups as required*
   - *Perform any extra standard data backups as required*

You will then be ready to Restore the system from the Disaster Recovery Backup in conjunction with the DR media when required.

> ***Note if using TSM, check the TSM BA Client version in use on your server. Also Create a TSM Client Node.***

To perform a Bare Machine Recovery you must:

1. *Boot into the DR environment on the machine to be restored from the CBMR WinPE2 or WinPE4 DR CD or DVD.*
2. *Perform a system recovery from the specified backup location.*

3. Perform conventional data recovery from your third party backups if necessary.

3.1.1 Create The Bootable Recovery Environment

The supplied CRISP tool is used to create the CBMR recovery environment. This environment is based upon a customised version of Microsoft's WinPE2 or WinPE4.

Once created the recovery environment is booted on the target system and then drives the restore process.

This tool should be run in conjunction with the supplied CRISP WinPE2 or WinPE4 Fileset for CBMR 7.1. The fileset should be installed alongside the CRISP on the same host or technician machine.

A full discussion of how to install and run CRISP is contained in the separate **CRISP User Guide**. Note that the CRISP does not need to be installed on the system to be backed up; any suitable machine will do.

Output from the CRISP tool is a bootable WinPE2 or WinPE4 ISO file which can then be burnt to physical media (CD or DVD) or mounted directly in a VM environment.

This media is then booted on the target machine to control the recovery operation.

3.1.2 TSM Client Version

If you intend to use TSM as your backup location it is important to check the version of the TSM Client installed on your machine. Versions supported by CBMR are summarised in the **Readme** document.

> ***Note: Please refer to the Readme document for the latest client support details.***

If you are not using TSM, please skip this step.

3.1.3 Creating a TSM Node

This step is only required if TSM is used in the recovery procedure. Please ignore this step if TSM is not being used.

CBMR will connect to a TSM server as a client node. The machine's operating system files and other important files will be stored under a Filespace in the client node. If you need to create a Client node using the TSM Admin Client, refer to the **TSM Administrator Guide** for further information.

To use the TSM module, you must enable CBMR to backup to the IBM Tivoli Storage Manager by creating a dedicated node via the TSM Admin client.

The settings required for the node are:

Archive Delete Allowed	YES
Backup Delete Allowed	YES
Client Compression setting	CLIENT
Force password reset	NO

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Node Type	CLIENT

In addition, you must consider your password policy. If you specify a Password Expiration period, you will have to set the password in CBMR every time the password expires.

> *Note: automatic password generation for the client nodes is supported in CBMR 5 and later.*

Additional Configuration to Maintain Multiple Backup Versions

If it is required to hold more than one version of the DR backup in the same filespace, then the node must be setup correctly to support this.

You must have a **Management Class (MC)**, which contains a **Backup Copy Group (BCG)** and an **Archive Copy Group (ACG)**.Your node needs to be registered to use the **MC**.

The parameters of the **BCG** of interest are:

- Versions Data Exists = 2
- Versions Data Deleted = 1
- Retain Extra Versions = 30
- Retain Only Version = 60

In this example, there can be two versions of an object. The Versions Data Deleted attribute specifies the maximum number of different backup versions (1 in this case) retained for files and directories that you erased from your file system. This parameter is ignored as long as the file or directory remains in your file system.

The expiration date for the remaining versions is based on the retain extra versions and retain only version parameters. In the example, if there is more than one version and one is deleted, the deleted one will be kept for 30 days. The only remaining copy of the object will be retained for 60 days (that is AFTER you make it inactive).

> *Note: if several versions of a DR backup are maintained in TSM, the WinPE2 or WinPE4 recovery environment will allow you to choose a specific version to restore.*

3.2 The Create Configuration Wizard

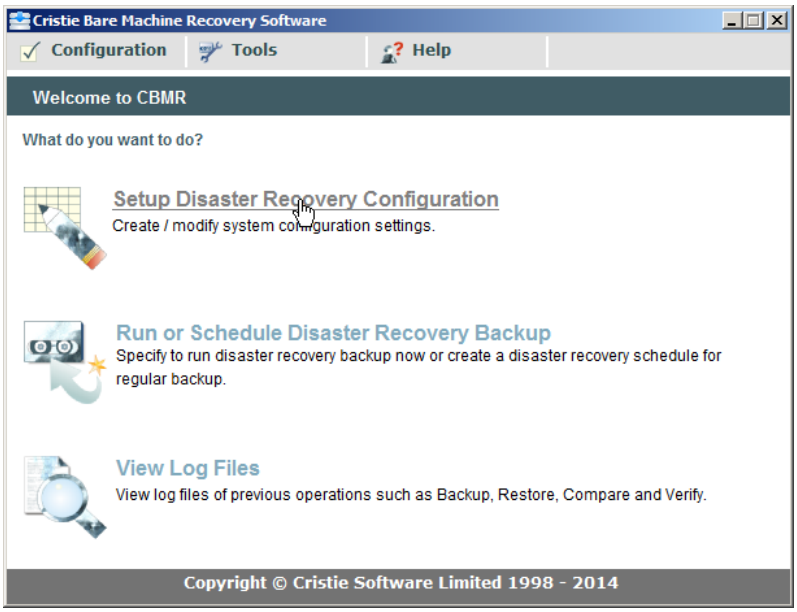
Configuration information can be stored only within the DR backup itself.

As part of this process, the details about hard disks, operating system, storage controller(s), network adapter(s) and network settings are stored. You can override some of these details if you wish.

The next section discusses this in detail.

3.2.1 Storing Configuration Parameters

In the CBMR main window, click on **Setup Disaster Recovery Configuration**:


Cristie Bare Machine Recovery Software
Configuration
Tools
Help
Welcome to CBMR
What do you want to do?
Setup Disaster Recovery Configuration
Create / modify system configuration settings.
Run or Schedule Disaster Recovery Backup
Specify to run disaster recovery backup now or create a disaster recovery schedule for regular backup.
View Log Files
View log files of previous operations such as Backup, Restore, Compare and Verify.
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The **CBMR Configuration - Welcome** dialogue will appear.

CBMR Configuration - Welcome
Welcome to Disaster Recovery configuration wizard
This wizard will take you through the steps in configuring CBMR for recovery on this system.
Select the [Next] button to continue.
< Back
Next >
Cancel

Select Next> and the **CBMR Configuration - Select Volumes to Format** dialogue will help you to select the disks and partitions which should be formatted during a recovery:

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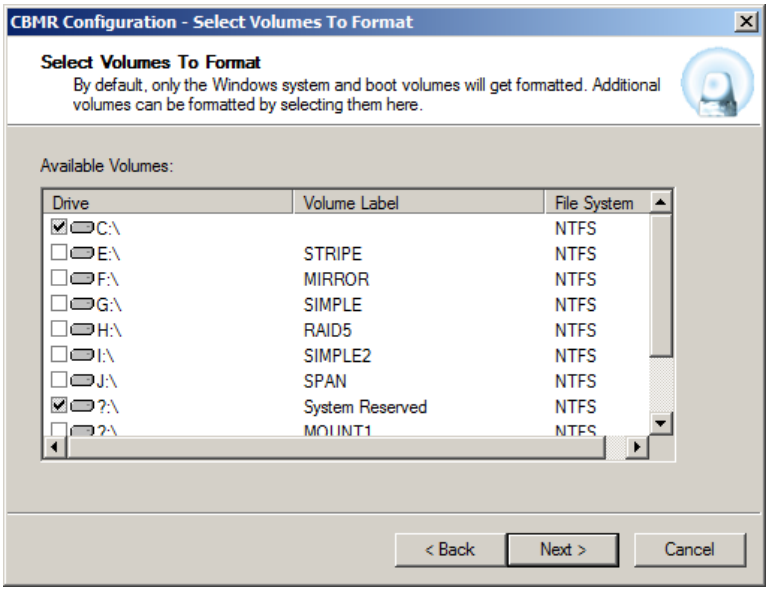
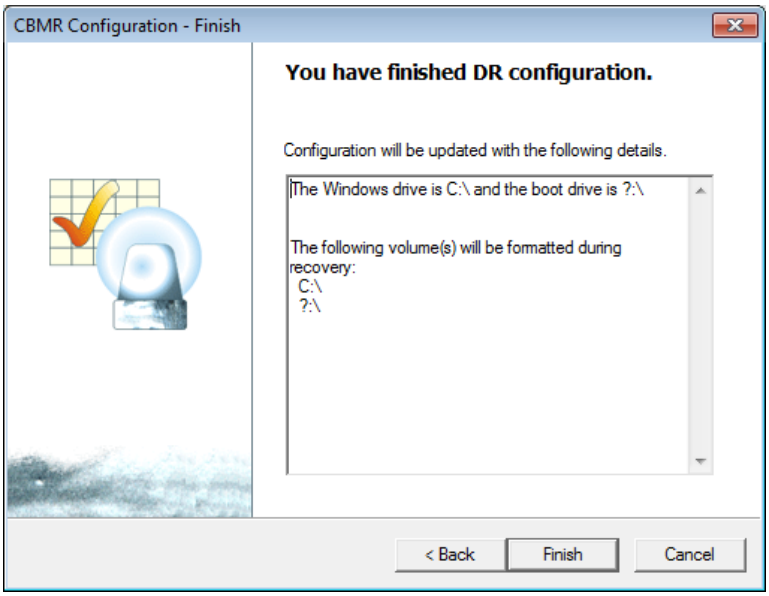

CBMR Configuration - Select Volumes To Format
Select Volumes To Format
By default, only the Windows system and boot volumes will get formatted. Additional volumes can be formatted by selecting them here.
Available Volumes:
Drive
Volume Label
File System
C:\ NTFS
E:\ STRIPE NTFS
F:\ MIRROR NTFS
G:\ SIMPLE NTFS
H:\ RAID5 NTFS
I:\ SIMPLE2 NTFS
J:\ SPAN NTFS
?:\ System Reserved NTFS
< Back
Next >
Cancel

The Windows boot and system partitions will be selected by default and you cannot exclude them. All other volumes and partitions can be selected or de-selected by clicking on the selection box which toggles the current selection.

Click on Next> to confirm the disks/partitions for formatting.


CBMR Configuration - Finish
You have finished DR configuration.
Configuration will be updated with the following details.
The Windows drive is C:\ and the boot drive is ?:\
The following volume(s) will be formatted during recovery:
C:\
?:\
< Back
Finish
Cancel

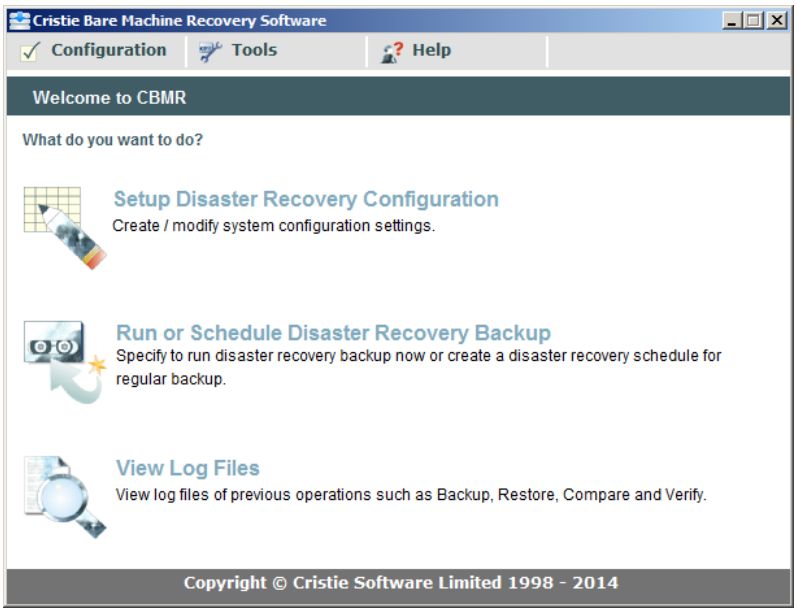
Check that all your selections are correct. If you need to modify any of these settings, choose the <Back button and modify your selection.

Finally, click Finish to save the settings. When a DR backup is run, the configuration information will be stored to a folder **CBMRCFG** on the Windows drive. This folder will be automatically included with the backup. This folder should never be removed manually, nor its attributes or contents changed.

3.3 Creating and Testing DR Backup

For locally attached physical Backup Locations (ie tape, library auto-loader or local disk), insert a clean tape in the tape drive or ensure there is enough space on the backup disk.

Click on the **Run or Schedule Disaster Recovery Backup** option in the CBMR main window:


Cristie Bare Machine Recovery Software
Configuration
Tools
Help
Welcome to CBMR
What do you want to do?
Setup Disaster Recovery Configuration
Create / modify system configuration settings.
Run or Schedule Disaster Recovery Backup
Specify to run disaster recovery backup now or create a disaster recovery schedule for regular backup.
View Log Files
View log files of previous operations such as Backup, Restore, Compare and Verify.
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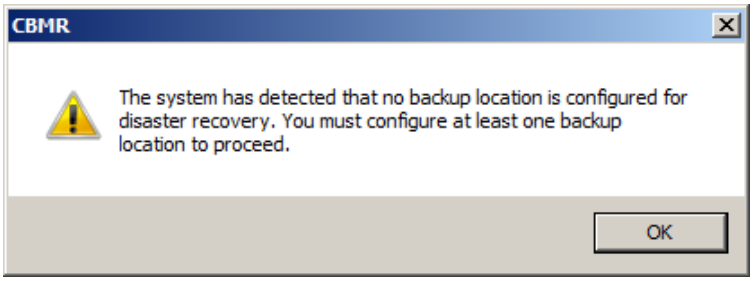
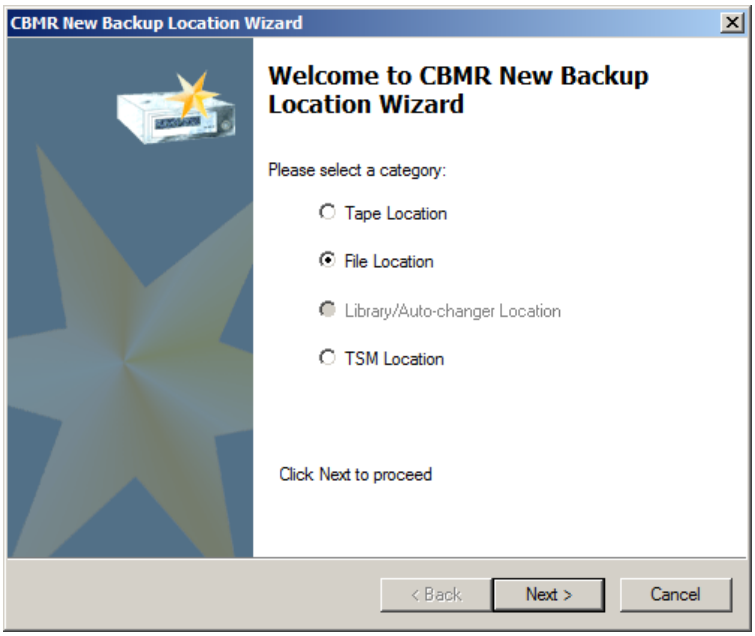
At least one Backup location must exist in order to proceed through the wizard. If none have been previously configured, you will see a message that indicates this.


CBMR
The system has detected that no backup location is configured for disaster recovery. You must configure at least one backup location to proceed.
OK

Click OK to accept the message.

This will open the **CBMR - New Backup Location Wizard** welcome dialogue.



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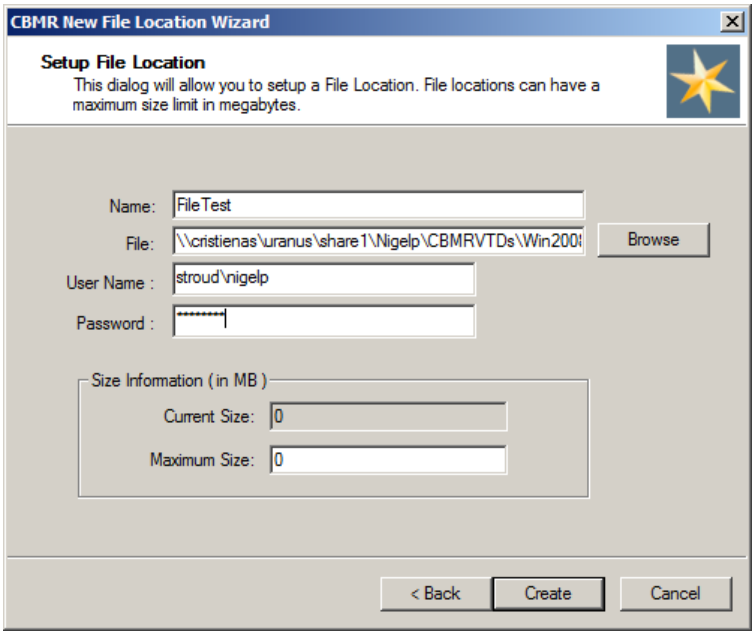
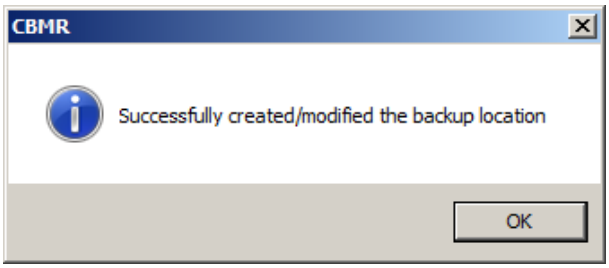
Select the Category of Backup required, for example, File.

Select Next> to continue and the **CBMR - New File Location Wizard** is displayed:



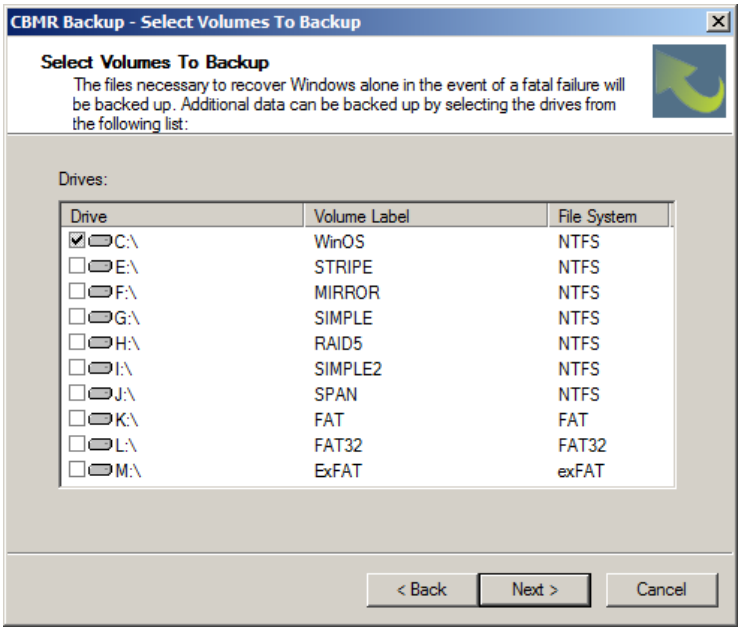
Click Create to create the specified File Location. This is confirmed thus:



On clicking OK to continue and the following dialogue is displayed:

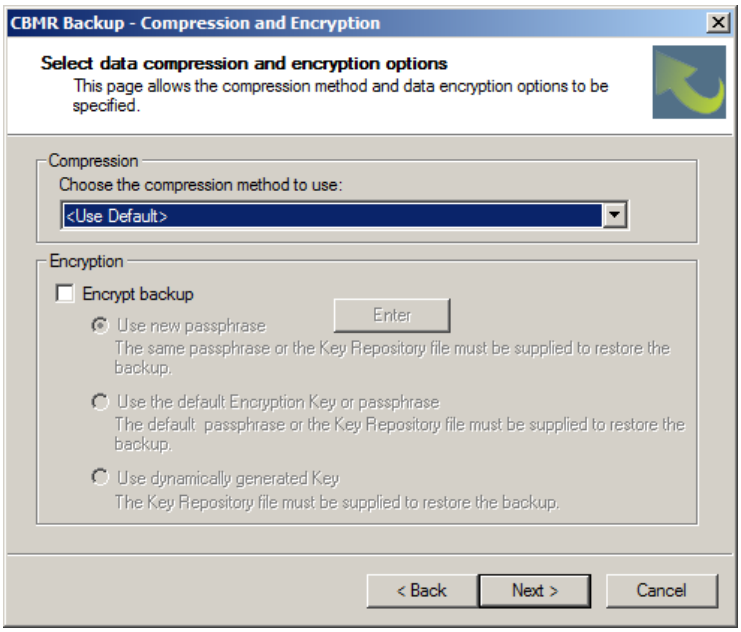
CBMR Backup - Welcome
Welcome to Disaster Recovery Backup Wizard.
These pages will enable you to define a DR Backup. The DR Backup may be run immediately, saved for future use or scheduled to run at regular time.
< Back
Next >
Cancel

Click Next > and the **CBMR Backup - Select Volumes To Backup** dialogue is displayed:


CBMR Backup - Select Volumes To Backup
Select Volumes To Backup
The files necessary to recover Windows alone in the event of a fatal failure will be backed up. Additional data can be backed up by selecting the drives from the following list:
Drives:
Drive
Volume Label
File System
C:\ WinOS NTFS
E:\ STRIPE NTFS
F:\ MIRROR NTFS
G:\ SIMPLE NTFS
H:\ RAID5 NTFS
I:\ SIMPLE2 NTFS
J:\ SPAN NTFS
K:\ FAT FAT
L:\ FAT32 FAT32
M:\ ExFAT exFAT
< Back
Next >
Cancel

The dialogue shows all the available hard disk drives (including any partitions mounted on folders). You can select all or a sub-set as required. Whatever you choose, the Windows folder, the TSM installation folder (if installed), the Registry, "Documents and Settings" folder and CBMR folder will *always* get backed up.

Select Next> to open the **CBMR Backup - Compression and Encryption Options** dialogue:


CBMR Backup - Compression and Encryption
Select data compression and encryption options
This page allows the compression method and data encryption options to be specified.
Compression
Choose the compression method to use:
<Use Default>
Encryption
Encrypt backup
Enter
Use new passphrase
The same passphrase or the Key Repository file must be supplied to restore the backup.
Use the default Encryption Key or passphrase
The default passphrase or the Key Repository file must be supplied to restore the backup.
Use dynamically generated Key
The Key Repository file must be supplied to restore the backup.
< Back
Next >
Cancel

Select <**Use Default**> to accept the default compression method. Alternatives are available via the drop-down menu.

If you wish to encrypt the DR backup, select the **Encrypt backup** tick-box.

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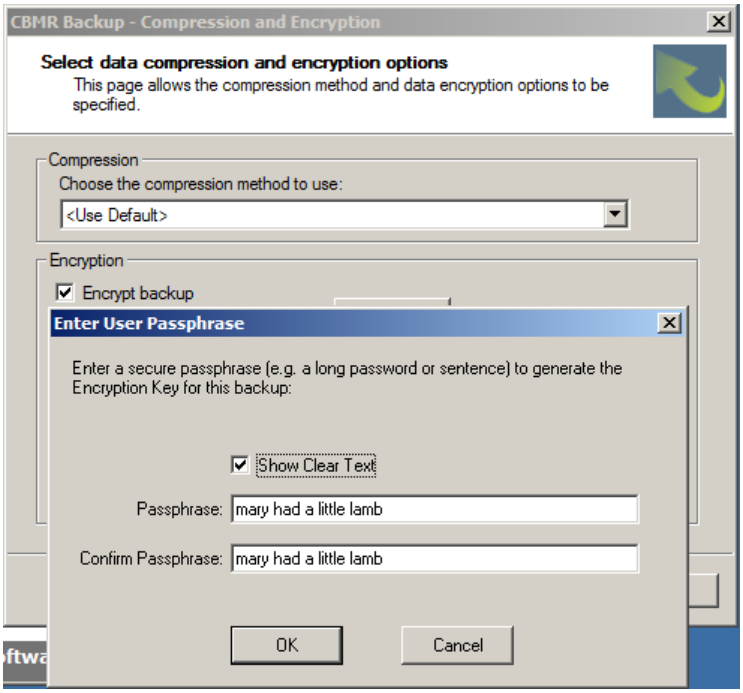
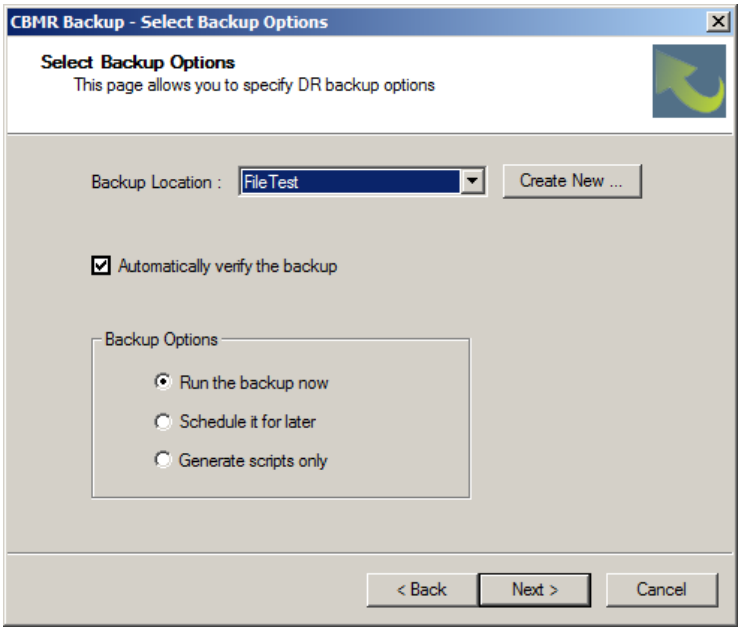

CBMR Backup - Compression and Encryption
Select data compression and encryption options
This page allows the compression method and data encryption options to be specified.
Compression
Choose the compression method to use:
<Use Default>
Encryption
Encrypt backup
Enter User Passphrase
Enter a secure passphrase (e.g. a long password or sentence) to generate the Encryption Key for this backup:
Show Clear Text
Passphrase:
mary had a little lamb
Confirm Passphrase:
mary had a little lamb
OK
Cancel

Use either the system default key or enter a new passphrase or key. Click OK.

Select Next> to display the **CBMR Backup - Select Backup Options** dialogue:



The **Automatically verify the backup** check box will be checked by default, which will force an integrity check of the backup after completion. This is independent of the program default settings.

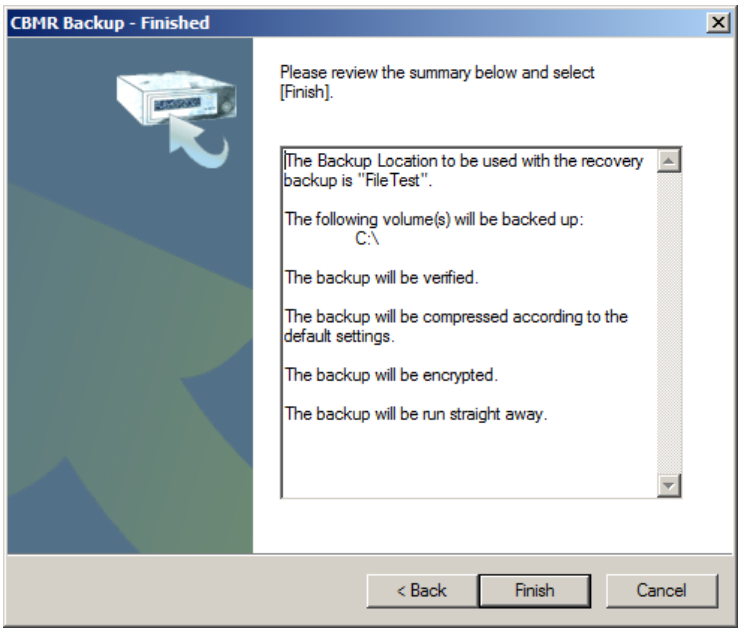
> ***Note: this can be turned off to reduce the overall backup time by clearing the check box. However, this is not recommended.***

Select **Run the backup now** if you wish to run the DR backup immediately on pressing the Next> button.

Select **Schedule it for later** if you wish to schedule it either using the CBMR or Windows Scheduler, depending on the default settings.

Select **Generate scripts only** if you wish to prepare a script (disrec.scp) for scheduling the DR backup. No actual backup will be performed in this case.

Press Next> to continue to the last page of the Wizard.


CBMR Backup - Finished
Please review the summary below and select [Finish].
The Backup Location to be used with the recovery backup is "FileTest".
The following volume(s) will be backed up:
C:\
The backup will be verified.
The backup will be compressed according to the default settings.
The backup will be encrypted.
The backup will be run straight away.
< Back
Finish
Cancel

Select Finish to start the backup process.

> ***Note: it is not possible to run a DR backup until the DR configuration has been setup and saved at least once.***

Testing the Backup Location Using WinPE2 or WinPE4 Mode Recovery

Insert the WinPE2 or WinPE4 Disaster Recovery DVD/CD in your DVD/CD-ROM drive and reboot your computer from the disk. Follow the on-screen instructions and boot the Windows PE Recovery Console.

> ***Note: before storing your Disaster Recovery Disk (and the DR Backup tape if used), it is important to check that the Disaster Recovery works and the Backup Location is accessible. You only need to test that you can connect to the backup data. The description below is a summary of the process which is described in more detail in the section Restoring Your System.***

3.4 Restoring Your System

This section discusses the steps required to run a recover sequence using the CBMR Recovery Console. The console is booted from the media created by CRISP in conjunction with the CRISP WinPE2 or WinPE4 Fileset for CBMR 7.1 (see Create the bootable cloning environment for further details).

The WinPE2 or WinPE4 based recovery environment is booted on the ***target*** system. This could be the original or a dissimilar system.

A typical CBMR recovery sequence consists of the following steps.

1. *Install and run the **Cristie Recovery ISO Producer** (**CRISP**) tool on a suitable system to*

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create the CBMR WinPE2 or WinPE4 based recovery environment. This only needs to be done once.

2. *Boot the CBMR WinPE2 or WinPE4 recovery environment on the **target** system.*
3. *Run a restore sequence from the recovery environment on the **target** system using the CBMR backup.*
4. *When the restore operation is complete and, before booting the system, you may change the hostname and IP address as required. If the target system uses different hardware from the source system inject additional drivers into the system using the hardware wizard tool. This tool will detect any new devices in the target system and prompt for the drivers.*
5. *Boot the recovered system.*

3.4.1 WinPE2 or WinPE4 based CBMR Recovery Console

When the **WinPE2 or WinPE4 CBMR Console** is booted, a Windows installation-like boot procedure is started.

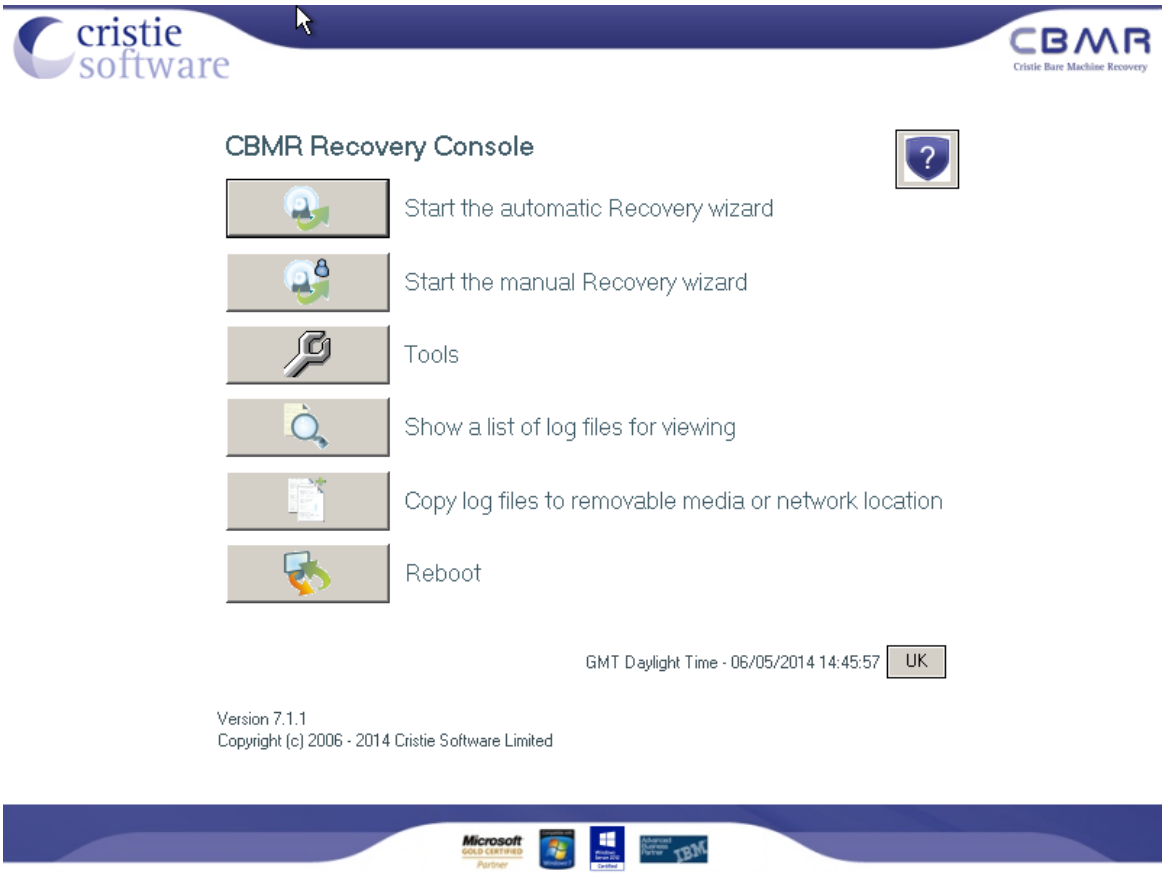
During the boot process, WinPE2 or WinPE4 drivers for your **Plug and Play** devices will be loaded - in particular the **Mass Storage** devices and **Network Adapters**. When the WinPE2 or WinPE4 system has booted, it is possible to remove the CD if you wish.

Note: the DR Console will automatically reboot 72 hours after starting. This is an operating limitation of the MIcrosoft Windows WinPE2 or WinPE4 environment.

When this sequence completes, the **CBMR Recovery Console** will be shown.

3.4.1.1 CBMR Recovery Console Main Menu

When you boot the **WinPE2 or WinPE4** DR environment (the <%CP_WINPE2%> and <%CP_WINPE4%> versions are very similar), you will see the **CBMR Recovery Console** Main Menu as below:


cristie software
CBMR
Cristie Bare Machine Recovery
CBMR Recovery Console
Start the automatic Recovery wizard
Start the manual Recovery wizard
Tools
Show a list of log files for viewing
Copy log files to removable media or network location
Reboot
GMT Daylight Time - 06/05/2014 14:45:57
UK
Version 7.1.1
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You may configure the format of the displayed date/time and the keyboard layout, by pressing the locale icon. Note this icon will be shown according to the locale of the host system used to create the ISO using the CRISP utility so it may not match the version shown here. So if, for example, the ISO was built on a machine configured with a UK locale it will be displayed as .

By default the standard display uses a keyboard layout to match the default locale as discussed above. However, this may be changed to one of the listed alternatives. Note that this does not

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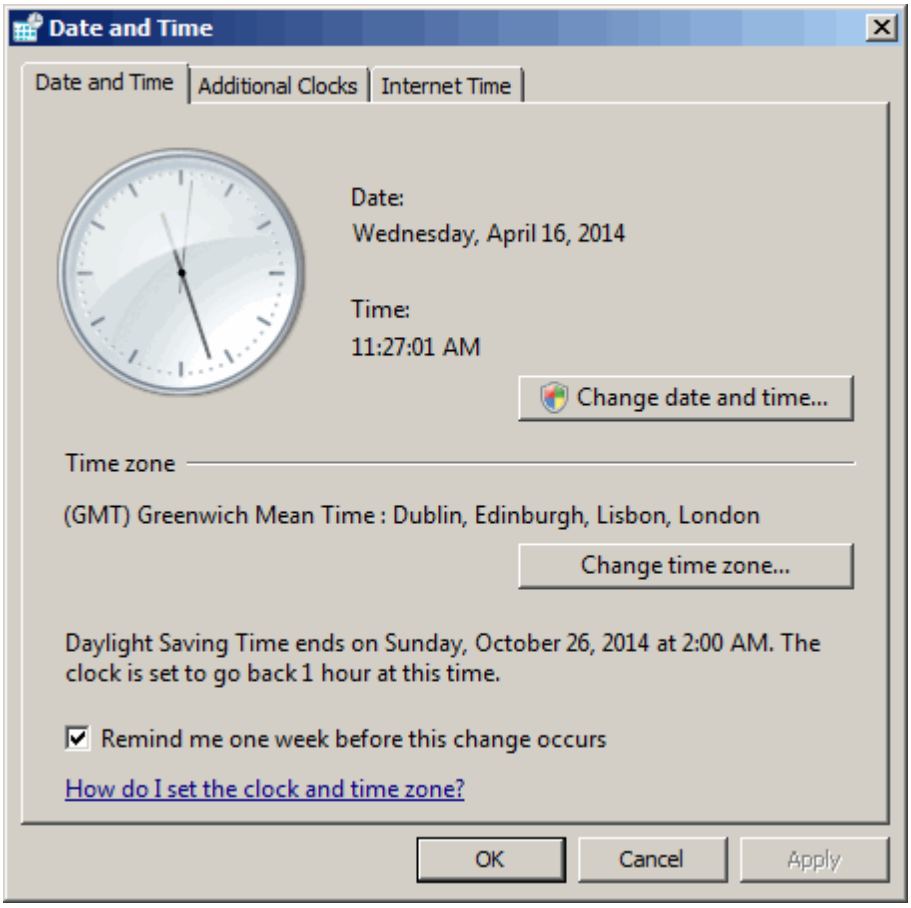
change the display language which is always English.

Select **Date, Time and Time Zone** to configure the time zone for the recovery.

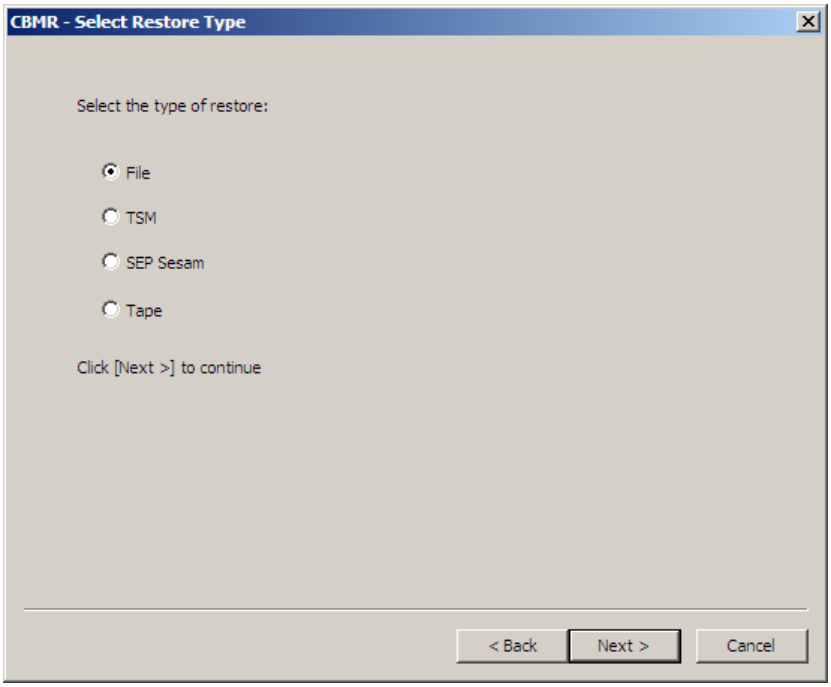

Date and Time
Date and Time
Additional Clocks
Internet Time
Date:
Wednesday, April 16, 2014
Time:
11:27:01 AM
Change date and time...
Time zone
(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
Change time zone...
Daylight Saving Time ends on Sunday, October 26, 2014 at 2:00 AM. The clock is set to go back 1 hour at this time.
Remind me one week before this change occurs
How do I set the clock and time zone?
OK
Cancel
Apply

Note: the Additional Clocks and Internet Time tabs are operational. In fact it is possible to synchronise the system time with an NTP time server if required.

Select the Help button to show online help for the recovery environment.

3.4.1.2 Start Automatic Recovery Wizard

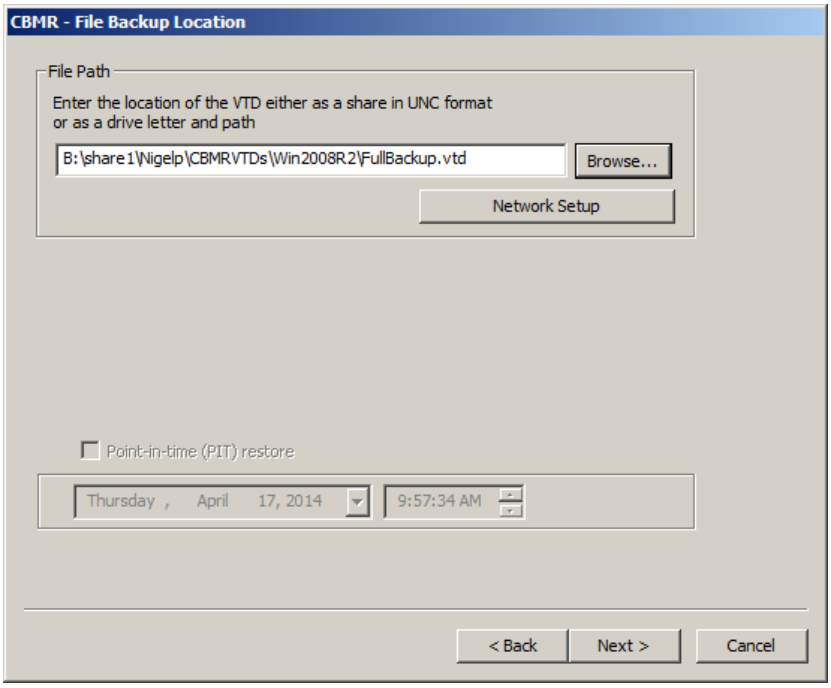
Select this option to commence an **automatic** recovery sequence. The following dialogue prompts you to identify the restore Type.



Press Next> to proceed to the first step of the sequence. Press Cancel to abort the recovery sequence at this point.

File Restore Type

If you selected a **File** restore type, then the following dialogue appears. In the example below the **Network Setup** functionality has been used to map drive **B:** to the location of the backup file in Virtual Tape Drive (VTD) format.



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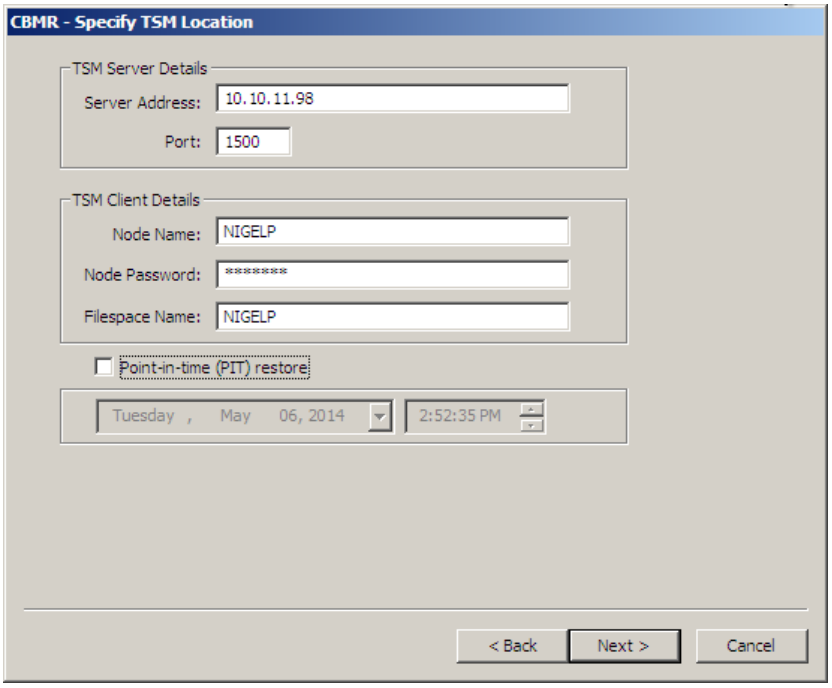
Note Point-in-time (PIT) restore mode is not supported for File type restores.

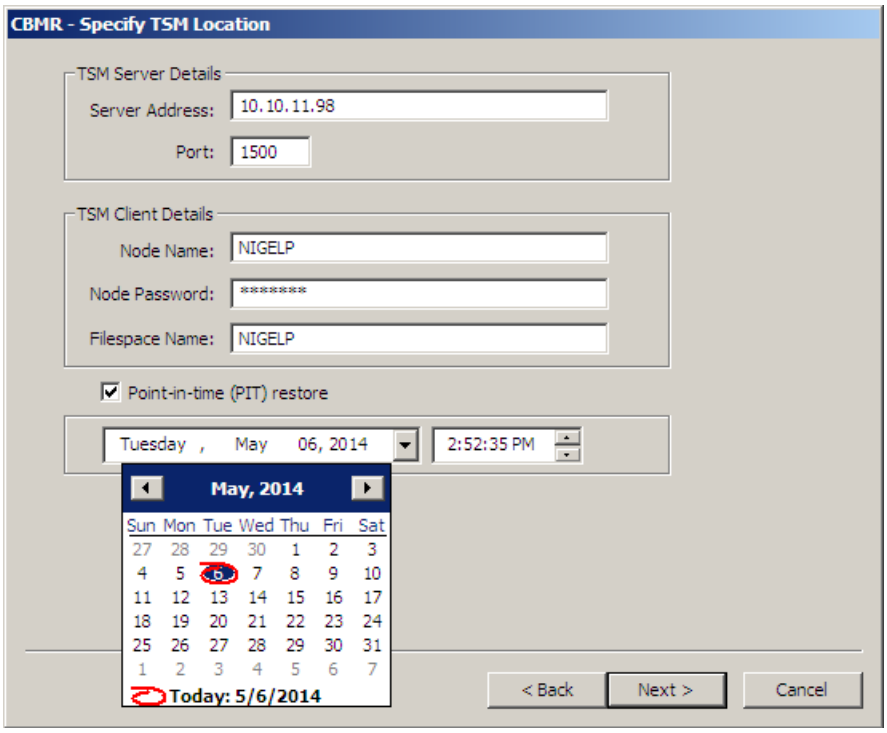
Click Next> to continue.

TSM Restore Type

If you selected a Restore Type of **TSM**, the following dialogue appears. Provide the details for the TSM server and Node used to contain the backup:



Selecting the **Point-in-time** (PIT) restore mode will allow the system to be recovered from the most recent backup before the specified date and time. This means the version of any file restored will be earlier than the specified date and time. Selecting the down-arrow in the calendar control will bring up a calendar:



This can be used to scroll the months/years backwards and forwards as necessary.

Note: a future date will result in the latest backup being recovered.

If PIT mode is not selected then, by default, the latest filespace versions will be restored.

Select Next> to continue. At this point the client backup on the specified server will be accessed and the machine configuration extracted.

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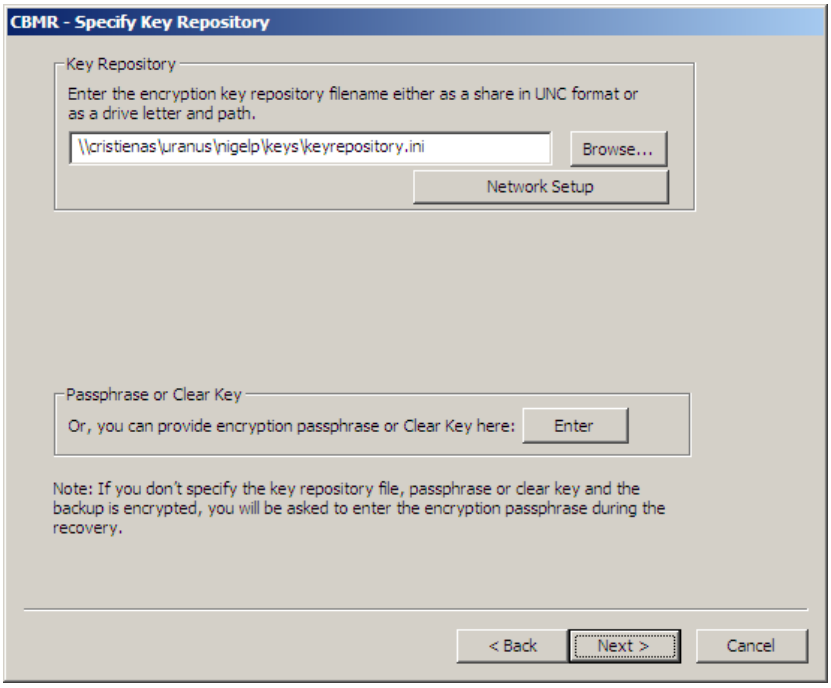
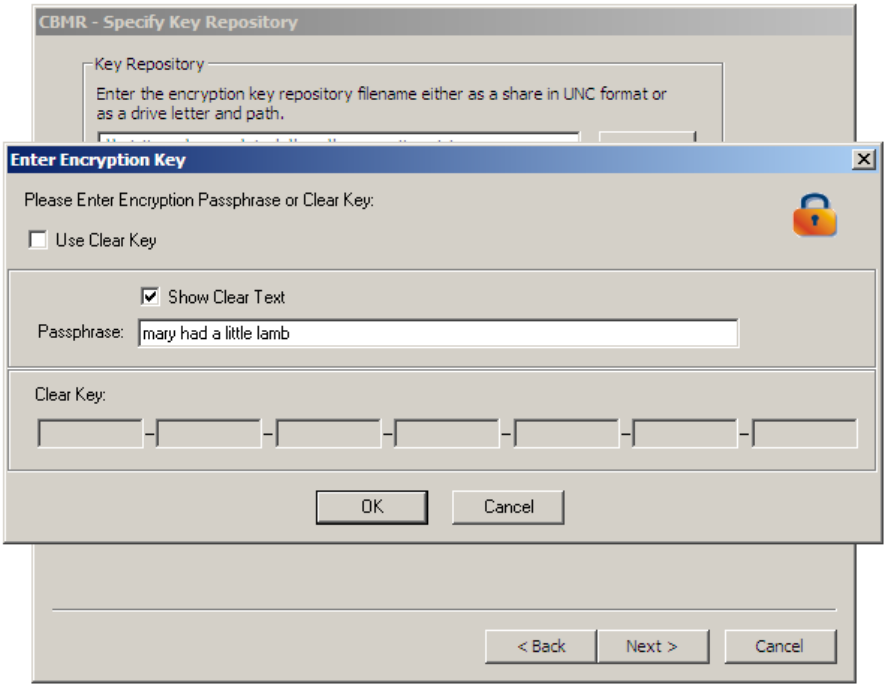
Specify Key Repository

Select Next> to specify a **Key Repository** path, **Passphrase** or **Clear Key**. These parameters are used if the backup is encrypted. If a key or passphrase is not used you may skip this step.


CBMR - Specify Key Repository
Key Repository
Enter the encryption key repository filename either as a share in UNC format or as a drive letter and path.
\\cristienas\uranus\nigelp\keys\keyrepository.ini
Browse...
Network Setup
Passphrase or Clear Key
Or, you can provide encryption passphrase or Clear Key here:
Enter
Note: If you don't specify the key repository file, passphrase or clear key and the backup is encrypted, you will be asked to enter the encryption passphrase during the recovery.
< Back
Next >
Cancel

If the backup was encrypted and no Key Repository file has been entered, then a prompt will appear for the encryption key or passphrase to be manually specified. For example:

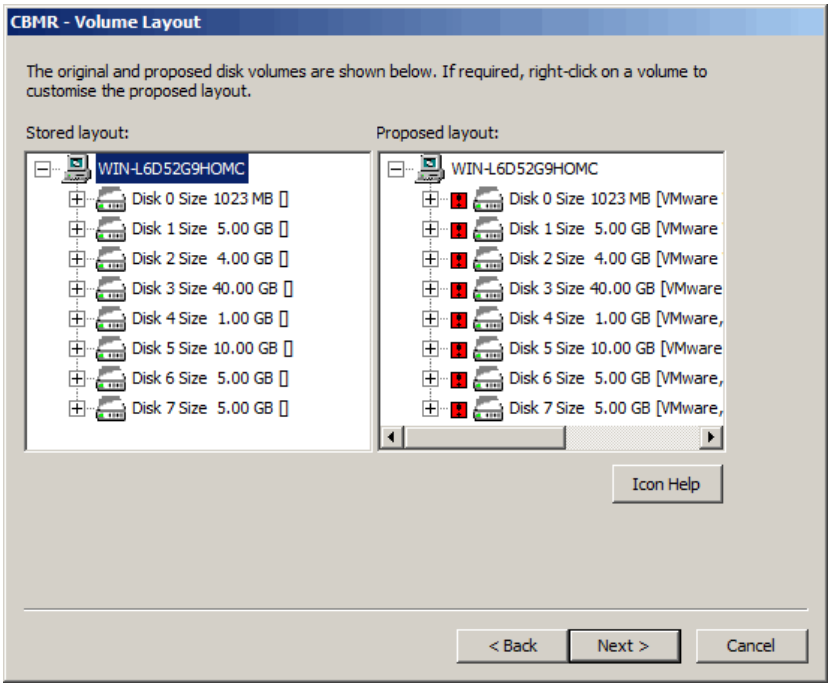

CBMR - Specify Key Repository
Key Repository
Enter the encryption key repository filename either as a share in UNC format or as a drive letter and path.
Enter Encryption Key
Please Enter Encryption Passphrase or Clear Key:
Use Clear Key
Show Clear Text
Passphrase:
mary had a little lamb
Clear Key:
OK
Cancel
< Back
Next >
Cancel

It is not possible to recover the configuration files from an encrypted backup without the key or passphrase.

Select Next> to continue to **Confirm Volume Layout.**

Confirm Volume Layout

The next step in the recovery shows a list of the disks and partitions to be recovered.


CBMR - Volume Layout
The original and proposed disk volumes are shown below. If required, right-click on a volume to customise the proposed layout.
Stored layout:
Proposed layout:
WIN-L6D52G9HOMC
Disk 0 Size 1023 MB []
Disk 1 Size 5.00 GB []
Disk 2 Size 4.00 GB []
Disk 3 Size 40.00 GB []
Disk 4 Size 1.00 GB []
Disk 5 Size 10.00 GB []
Disk 6 Size 5.00 GB []
Disk 7 Size 5.00 GB []
WIN-L6D52G9HOMC
Disk 0 Size 1023 MB [VMware
Disk 1 Size 5.00 GB [VMware
Disk 2 Size 4.00 GB [VMware
Disk 3 Size 40.00 GB [VMware
Disk 4 Size 1.00 GB [VMware,
Disk 5 Size 10.00 GB [VMware
Disk 6 Size 5.00 GB [VMware,
Disk 7 Size 5.00 GB [VMware,
Icon Help
< Back
Next >
Cancel

The left-hand panel of the dialogue shows the original disk layout and partitions. The right-hand panel shows how the recovered disks will be partitioned after the recovery.

A green tick box ✅ next to a disk signifies that the disk and its underlying partitions will be left intact. Placed next to a partition/volume means that the corresponding partition/volume **WILL NOT** be partitioned.

A red exclamation mark ❗ placed next to a disk means it **WILL** be partitioned during recovery. Placed next to a partition or volume means that the corresponding partition/volume **WILL** be partitioned.

A red/white exclamation mark ❗ placed next to a disk means at least one partition/volume **WILL** be partitioned.

A white box ☐ indicates that the disk will be completely ignored during the recovery.

Click on the Icon Help button to display a summary of this:

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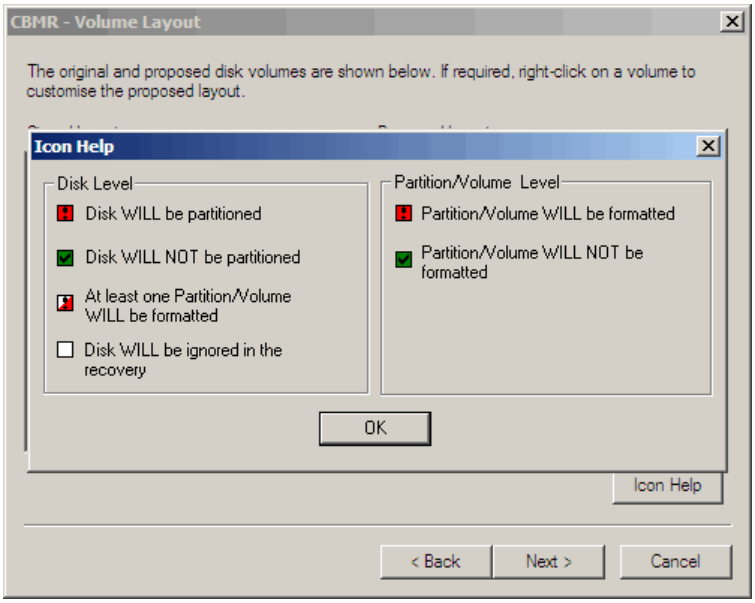
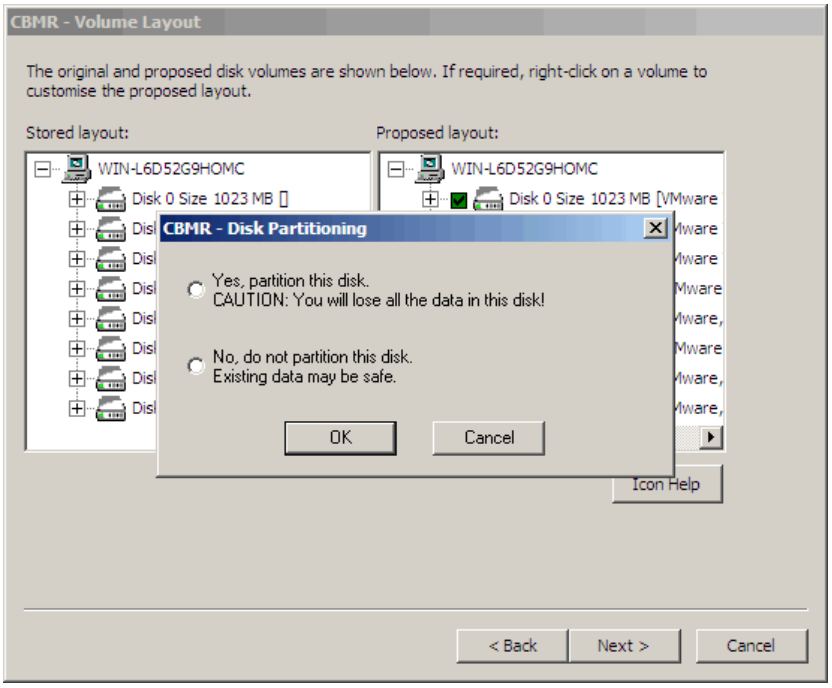

CBMR - Volume Layout
The original and proposed disk volumes are shown below. If required, right-click on a volume to customise the proposed layout.
Icon Help
Disk Level
Disk WILL be partitioned
Disk WILL NOT be partitioned
At least one Partition/Volume WILL be formatted
Disk WILL be ignored in the recovery
Partition/Volume Level
Partition/Volume WILL be formatted
Partition/Volume WILL NOT be formatted
OK
Icon Help
< Back
Next >
Cancel

When the recovery is to the original system, the contents of both panels will look similar if the number of disks is the same. Possibly the disk sizes will be different.

When performing a recovery to a dissimilar system, the disk mapping can be much more complex. Some of the criteria used to judge the disk mapping are:

- disk geometry
- disk capacity
- if currently formatted, the disk signature

You may right-click on any disk shown in the right-hand panel to select whether the disk will be formatted or not.


CBMR - Volume Layout
The original and proposed disk volumes are shown below. If required, right-click on a volume to customise the proposed layout.
Stored layout:
Proposed layout:
WIN-L6D52G9HOMC
Disk 0 Size 1023 MB []
WIN-L6D52G9HOMC
Disk 0 Size 1023 MB [VMware
CBMR - Disk Partitioning
Yes, partition this disk.
CAUTION: You will lose all the data in this disk!
No, do not partition this disk.
Existing data may be safe.
OK
Cancel
Icon Help
< Back
Next >
Cancel

Any attempt to incorrectly turn off formatting will result in this error:

CBMR - Disk Partitioning
CBMR - Error
This disk must be repartitioned as the existing disk doesn't match the original disk's layout
OK
OK
Cancel

You may also right-click on a partition to allow you to selectively modify the partition parameters or remove it altogether.

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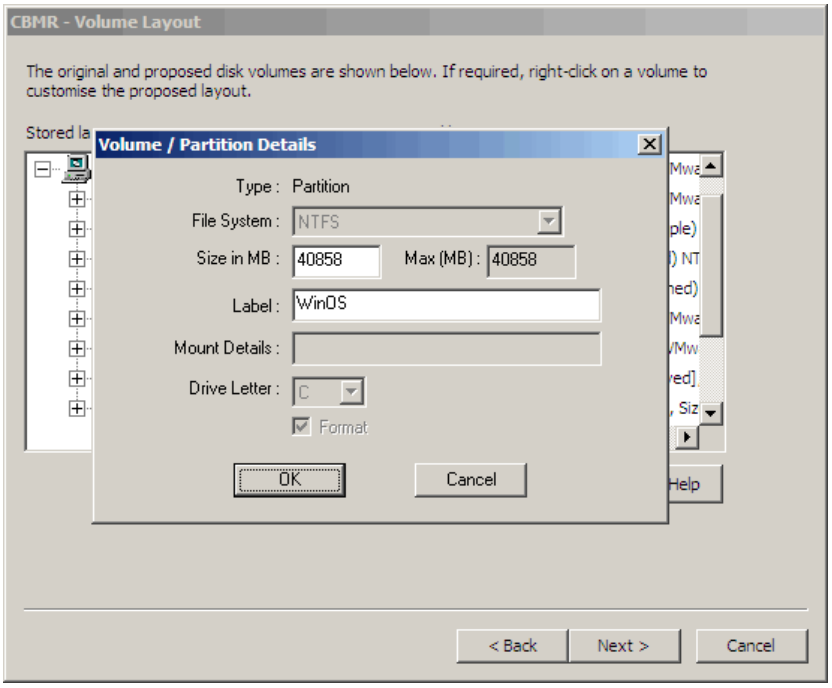
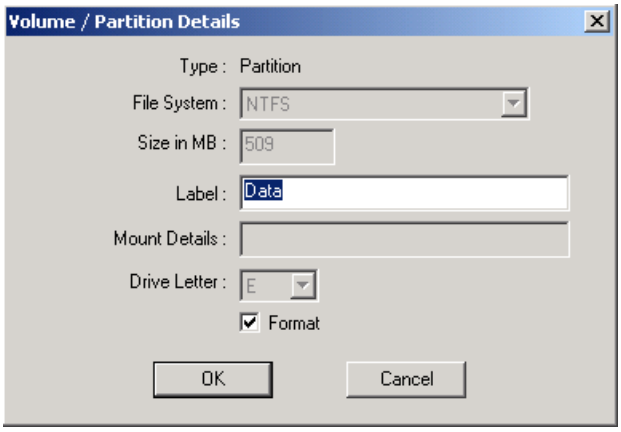


You may **Modify** the following partition parameters:

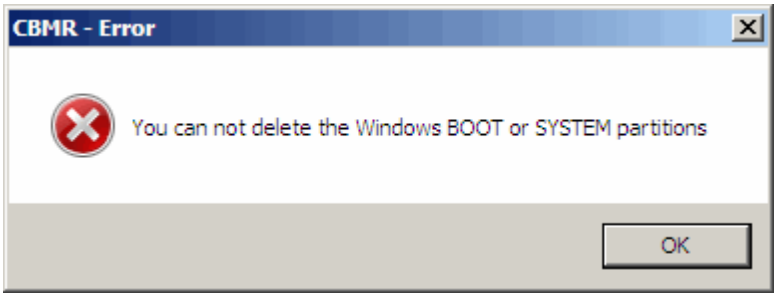
- size in MB (only if disk is shown with a)
- label
- format (yes/no)

The screenshot below shows an example:



Select **Delete** to remove the partition completely (only if disk is shown with a).

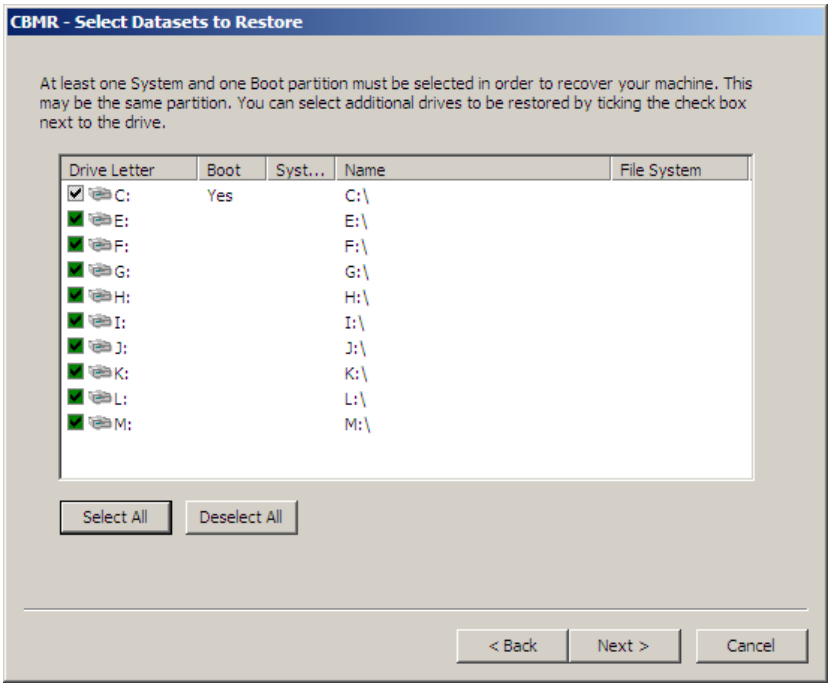
If you attempt to either not format or delete a Windows system partition, an error such as this will be displayed:



At this stage, nothing has happened to the disks. Press Next> to continue with the recovery.

Select Datasets to Restore

The next step prompts for the datasets to restore. Generally, each dataset represents a disk partition or volume. Put a tick against each dataset that should be restored:


CBMR - Select Datasets to Restore
At least one System and one Boot partition must be selected in order to recover your machine. This may be the same partition. You can select additional drives to be restored by ticking the check box next to the drive.
Drive Letter
Boot
Syst...
Name
File System
C: Yes C:\
E: E:\
F: F:\
G: G:\
H: H:\
I: I:\
J: J:\
K: K:\
L: L:\
M: M:\
Select All
Deselect All
< Back
Next >
Cancel

Click Next> to continue to the **Clone Settings** dialogue.

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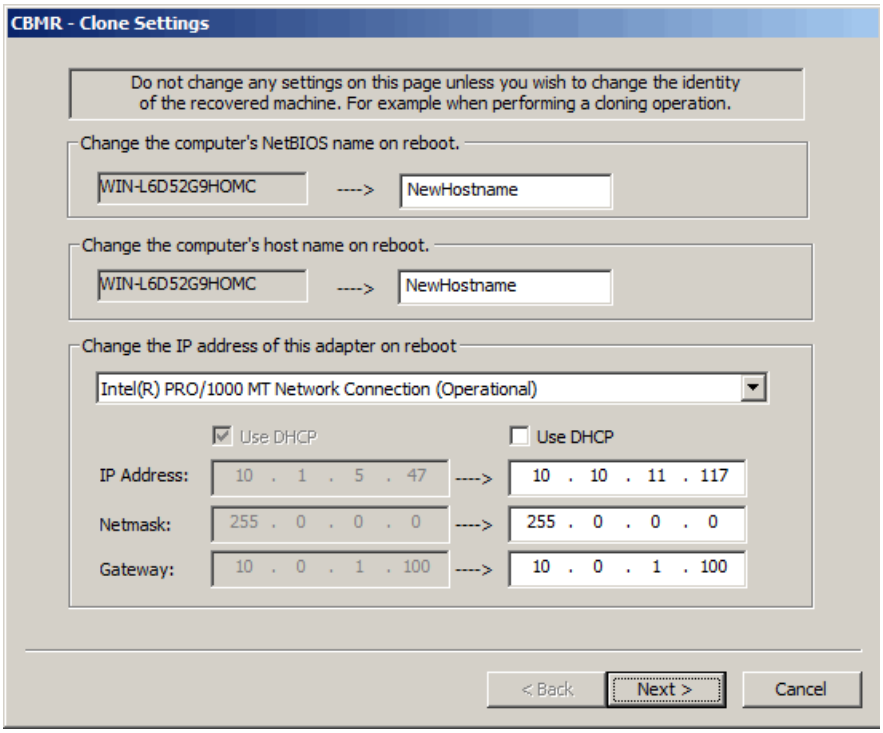
Clone Settings

Use this dialogue to change the recovered system's **hostname** and **IP addresses** if required. Select to use either DHCP or enter a valid static IP address.

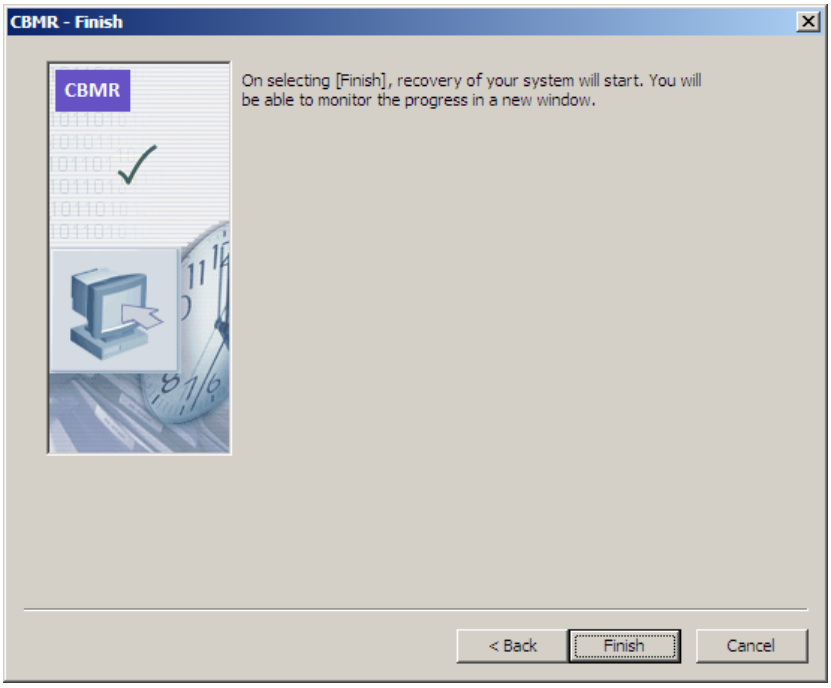

CBMR - Clone Settings
Do not change any settings on this page unless you wish to change the identity of the recovered machine. For example when performing a cloning operation.
Change the computer's NetBIOS name on reboot.
WIN-L6D52G9HOMC
---->
NewHostname
Change the computer's host name on reboot.
WIN-L6D52G9HOMC
---->
NewHostname
Change the IP address of this adapter on reboot
Intel(R) PRO/1000 MT Network Connection (Operational)
Use DHCP
Use DHCP
IP Address:
10 . 1 . 5 . 47
---->
10 . 10 . 11 . 117
Netmask:
255 . 0 . 0 . 0
---->
255 . 0 . 0 . 0
Gateway:
10 . 0 . 1 . 100
---->
10 . 0 . 1 . 100
< Back
Next >
Cancel

You may change the IP address for each NIC interface independently. NICs that are currently connected to a network are tagged with **(Operational)**.

If you wish to retain the current hostname and IP addresses leave the fields at their default values and select Next> to continue to the next section.

Proceed With The Recovery

Before continuing with the actual recovery a final warning screen is displayed.


CBMR - Finish
CBMR
On selecting [Finish], recovery of your system will start. You will be able to monitor the progress in a new window.
< Back
Finish
Cancel

If you are happy with the recovery configuration, press Finish. This will commence the **actual** recovery.

> ***Note: this procedure will COMPLETELY DESTROY any existing data on disks selected for format (ie shown with a). Disks or partitions tagged as no format (ie. shown with a) will be retained.***

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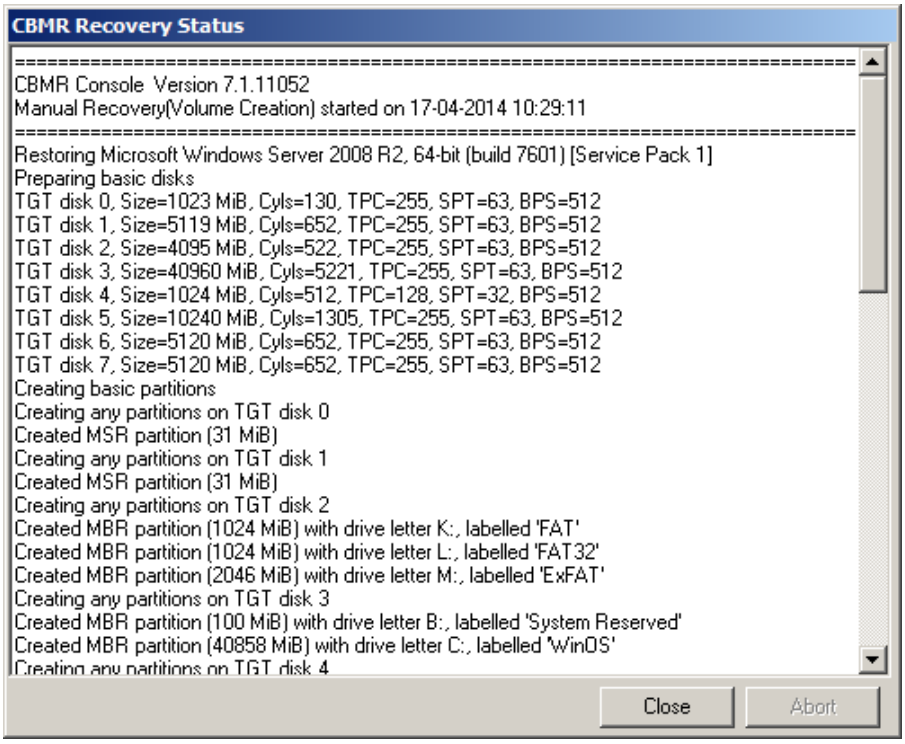
Disk Recovery Sequence

The sequence begins by preparing the disks selected for formatting.

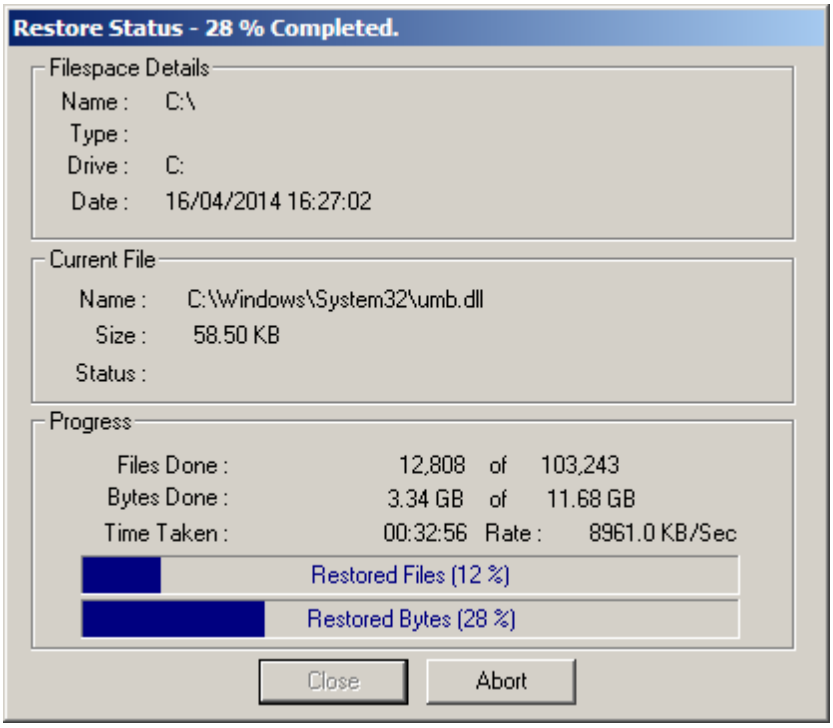

CBMR Recovery Status
CBMR Console Version 7.1.11052
Manual Recovery(Volume Creation) started on 17-04-2014 10:29:11
Restoring Microsoft Windows Server 2008 R2, 64-bit (build 7601) [Service Pack 1]
Preparing basic disks
TGT disk 0, Size=1023 MiB, Cyls=130, TPC=255, SPT=63, BPS=512
TGT disk 1, Size=5119 MiB, Cyls=652, TPC=255, SPT=63, BPS=512
TGT disk 2, Size=4095 MiB, Cyls=522, TPC=255, SPT=63, BPS=512
TGT disk 3, Size=40960 MiB, Cyls=5221, TPC=255, SPT=63, BPS=512
TGT disk 4, Size=1024 MiB, Cyls=512, TPC=128, SPT=32, BPS=512
TGT disk 5, Size=10240 MiB, Cyls=1305, TPC=255, SPT=63, BPS=512
TGT disk 6, Size=5120 MiB, Cyls=652, TPC=255, SPT=63, BPS=512
TGT disk 7, Size=5120 MiB, Cyls=652, TPC=255, SPT=63, BPS=512
Creating basic partitions
Creating any partitions on TGT disk 0
Created MSR partition (31 MiB)
Creating any partitions on TGT disk 1
Created MSR partition (31 MiB)
Creating any partitions on TGT disk 2
Created MBR partition (1024 MiB) with drive letter K:, labelled 'FAT'
Created MBR partition (1024 MiB) with drive letter L:, labelled 'FAT32'
Created MBR partition (2046 MiB) with drive letter M:, labelled 'ExFAT'
Creating any partitions on TGT disk 3
Created MBR partition (100 MiB) with drive letter B:, labelled 'System Reserved'
Created MBR partition (40858 MiB) with drive letter C:, labelled 'WinOS'
Creating any partitions on TGT disk 4
Close
Abort

This step involves:

- disk mapping original layout to new
- cleaning (removing any existing disk partitions)
- removing any existing dynamic volume databases
- re-creating the partitions on selected disks
- converting to dynamic volumes if required
- formatting to the required partition type
- creating partition/volume mount points
- making bootable volumes active

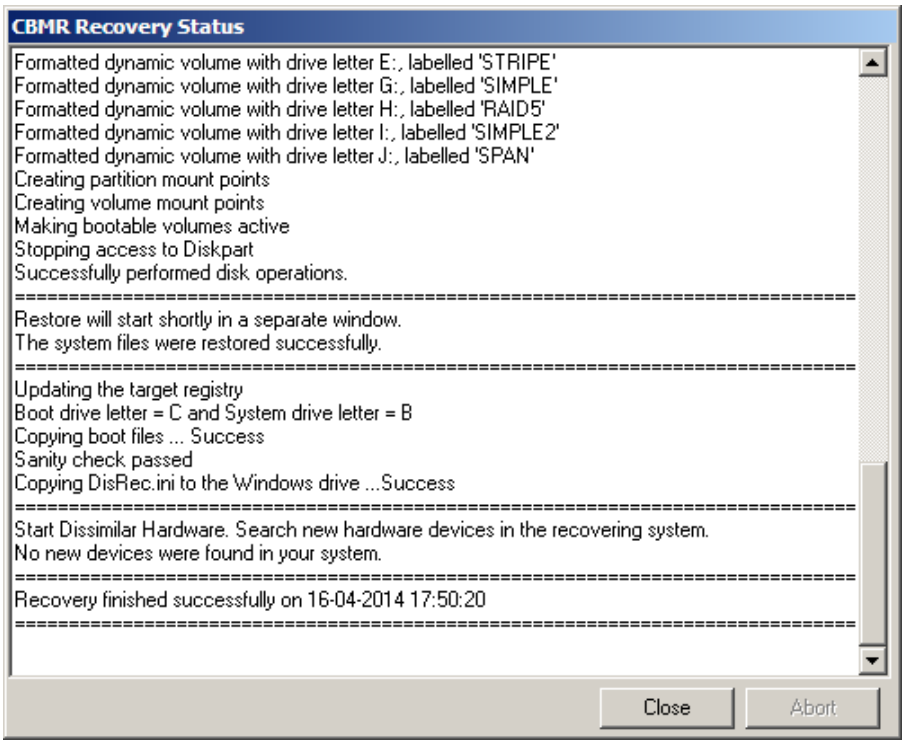
The next step is to recover the datasets to the selected target disks/partitions. A new window appears containing the restore status of recovered files, with progress bars indicating how much of the backup has been restored. This display also shows the recovery statistics in terms of time, size and throughput.

The recovery is divided into different phases: *SystemState*, followed by the recovery of each *volume dataset* selected:



This process may take some minutes if the backups are large. You may select the Abort button to terminate the file recovery process, but this may leave the disk or partition in an unpredictable state, which may render it unusable.

If any errors occur during the recovery, an error message will be shown in the dialogue window. Refer to the logs post recovery to establish the cause of any error.


CBMR Recovery Status
Formatted dynamic volume with drive letter E:, labelled 'STRIPE'
Formatted dynamic volume with drive letter G:, labelled 'SIMPLE'
Formatted dynamic volume with drive letter H:, labelled 'RAID5'
Formatted dynamic volume with drive letter I:, labelled 'SIMPLE2'
Formatted dynamic volume with drive letter J:, labelled 'SPAN'
Creating partition mount points
Creating volume mount points
Making bootable volumes active
Stopping access to Diskpart
Successfully performed disk operations.
Restore will start shortly in a separate window.
The system files were restored successfully.
Updating the target registry
Boot drive letter = C and System drive letter = B
Copying boot files ... Success
Sanity check passed
Copying DisRec.ini to the Windows drive ...Success
Start Dissimilar Hardware. Search new hardware devices in the recovering system.
No new devices were found in your system.
Recovery finished successfully on 16-04-2014 17:50:20
Close
Abort

The final steps of the recovery are to:

- run a sanity check to determine if all the expected boot files are present on the boot volume

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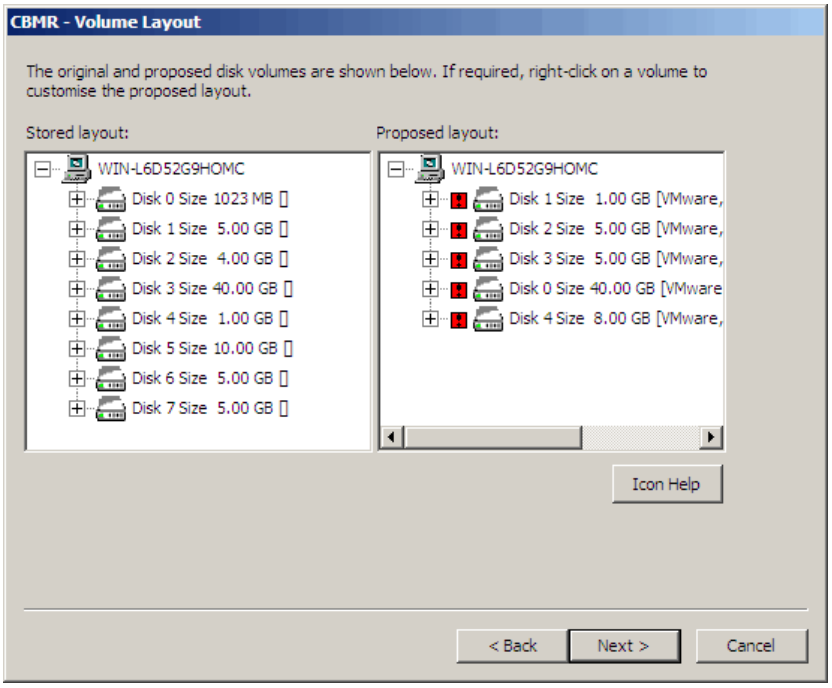
- run a dissimilar hardware check to determine if new drivers are required for new boot devices

Finally, press Close to return to the **Recovery Console** main menu. At this point, you may want to view the recovery logs and perhaps copy the logs to a local device or remote share before selecting to reboot.

> ***Note: Recovery logs are also saved to the recovered system to the CBMR installation sub-folder 'Temp' (e.g. "C:\Program Files\Cristie\CBMR\Temp")***

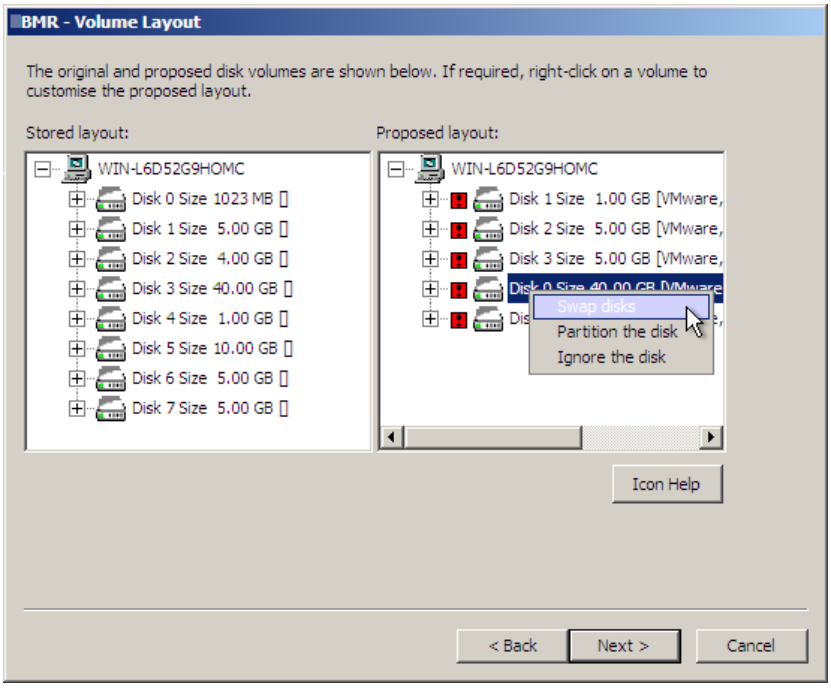
Disk Scaling

In situations where the target system has fewer or smaller disks than the original system, *Disk Scaling* will come into effect.

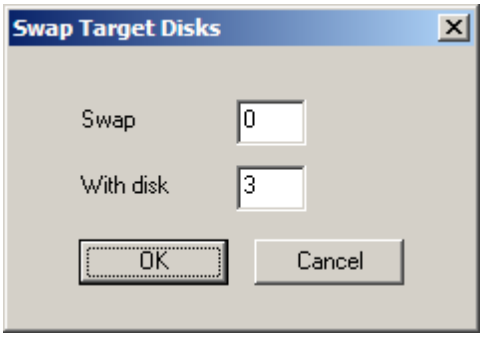

CBMR - Volume Layout
The original and proposed disk volumes are shown below. If required, right-click on a volume to customise the proposed layout.
Stored layout:
Proposed layout:
WIN-L6D52G9HOMC
Disk 0 Size 1023 MB
Disk 1 Size 5.00 GB
Disk 2 Size 4.00 GB
Disk 3 Size 40.00 GB
Disk 4 Size 1.00 GB
Disk 5 Size 10.00 GB
Disk 6 Size 5.00 GB
Disk 7 Size 5.00 GB
WIN-L6D52G9HOMC
Disk 1 Size 1.00 GB [VMware,
Disk 2 Size 5.00 GB [VMware,
Disk 3 Size 5.00 GB [VMware,
Disk 0 Size 40.00 GB [VMware
Disk 4 Size 8.00 GB [VMware,
Icon Help
< Back
Next >
Cancel

The above example shows a recovery from an original system with many physical disks to a target system with fewer disks. One of the target disks is also smaller than the original system disk.

You make need to invoke 'Map disks automatically' from the **Tools/Advanced** menu in this situation to ensure the source/target disks are mapped correctly. Ensure you do this before the recovery sequence is started. If automatic disk mapping does not provide the intended configuration you can also adjust the mapping manually by right-clicking on a disk in the target area and choosing the **Swap disk** feature.


BMR - Volume Layout
The original and proposed disk volumes are shown below. If required, right-click on a volume to customise the proposed layout.
Stored layout:
Proposed layout:
WIN-L6D52G9HOMC
Disk 0 Size 1023 MB
Disk 1 Size 5.00 GB
Disk 2 Size 4.00 GB
Disk 3 Size 40.00 GB
Disk 4 Size 1.00 GB
Disk 5 Size 10.00 GB
Disk 6 Size 5.00 GB
Disk 7 Size 5.00 GB
WIN-L6D52G9HOMC
Disk 1 Size 1.00 GB [VMware,
Disk 2 Size 5.00 GB [VMware,
Disk 3 Size 5.00 GB [VMware,
Swap disks
Partition the disk
Ignore the disk
Icon Help
< Back
Next >
Cancel

This will then display a dialogue allowing you to choose which target disks should be swapped in order.



In this scenario, CBMR will select as many disks to recover as possible (in this case only one disk - the boot disk). In addition, it will scale the partitions down in proportion to their original size and occupancy. This can be complicated by having, say, mirrored dynamic volumes when the mirror will need to be broken - if only one disk exists on the target (or it has been tagged as not to modify).

> ***Note: the Volume Layout dialogue will only show disks in the left hand panel that can be removed.***

> ***Note: during a recovery to a system with larger disks, the partition sizes will remain the same as the original by default. However, in this case, it is possible to increase partition size manually during the recovery by right-clicking on the partition icon and selecting Modify.***

Dissimilar Hardware

Next, the DR process performs a check to determine if there are new devices in the recovering machine that were not present in the original system. If this is true, then this is a 'dissimilar' DR and the following dialogue will be shown to allow the user to specify the location of the new driver files for these devices.

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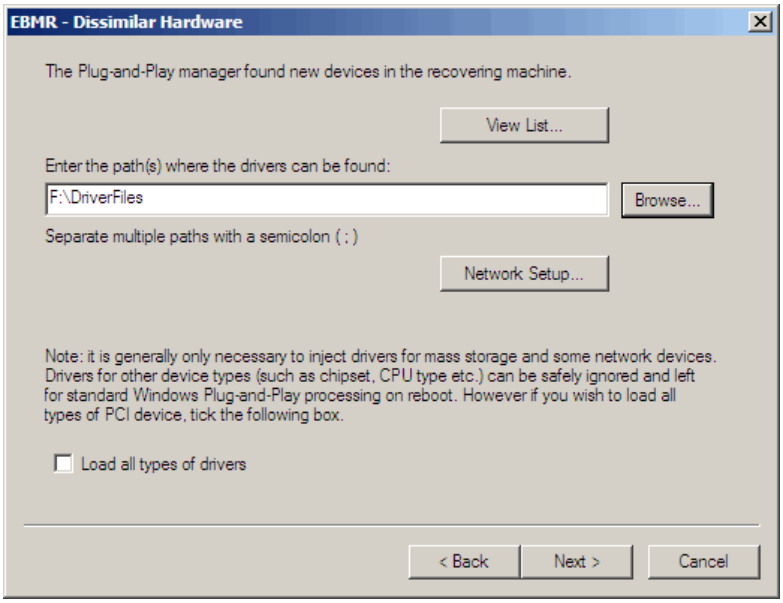
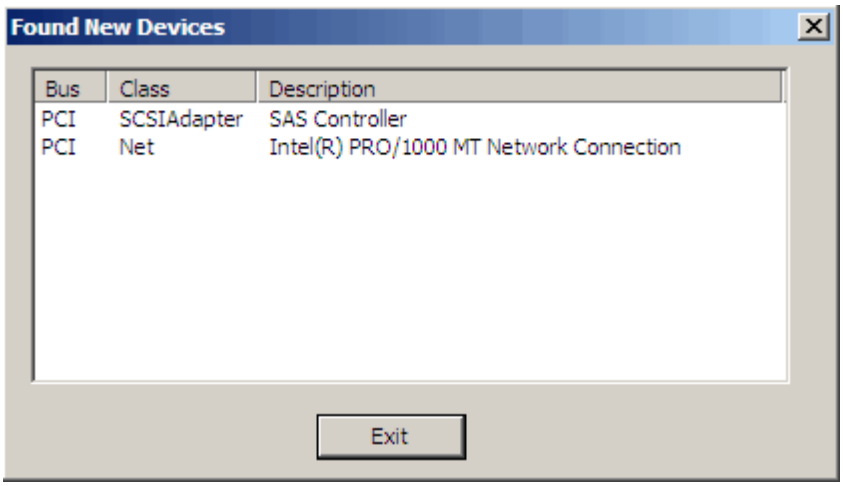

EBMR - Dissimilar Hardware
The Plug-and-Play manager found new devices in the recovering machine.
View List...
Enter the path(s) where the drivers can be found:
F:\DriverFiles
Browse...
Separate multiple paths with a semicolon (;)
Network Setup...
Note: it is generally only necessary to inject drivers for mass storage and some network devices. Drivers for other device types (such as chipset, CPU type etc.) can be safely ignored and left for standard Windows Plug-and-Play processing on reboot. However if you wish to load all types of PCI device, tick the following box.
Load all types of drivers
< Back
Next >
Cancel

Specify the default path or paths to be searched for the missing driver files. The paths may be on a local device (eg. a USB disk) or a network share. Use the Network Setup... button if you need to map a network share. In either case, the paths must be accessible to the WinPE2 or WinPE4 environment.

Select View List... to see a list of the new devices.



Ensure the specified path or paths contain the correct drivers for the dissimilar machine (ie. correct 32 or 64-bit version as appropriate for the OS). At the end of the DR sequence, the specified paths will be searched for the missing drivers and automatically injected into the recovered system.

By default, it is only necessary to inject drivers for mass storage devices and, in some some cases, network devices. The 'Load all types of drivers' tick box will force the DR to look for all drivers in addition to mass storage and network devices. For example, this could include graphics cards, USB and chipset devices, but these are rarely required and not recommended.

Note that if drivers are not found for the new boot disk then, although WinPE2 or WinPE4 will be able to recover the files to the disk, there is a good chance that it will not boot correctly.

Press Next> to proceed with the recovery.